

water on the Western South American coast in about the same latitude (Valparaiso) (4), which on the other hand is, on account of the cold Peruvian current, lower than on the Eastern Coast of South America, in the Atlantic Ocean, where (in the latitude of 42° and 43° south) the temperature of the sea water on the surface varies between 14° 0 and 14° 5 C (5).

My fragmentary observations of sea temperature prove also, that during the winter months, the sea water in comparatively shallow bays in Port Jackson (in Darling Harbour the depth is from 3 to 5½ fathom) is much colder than the water of the ocean. It is very likely that in the hot summer months the reverse is the rule, i.e., that the water of the ocean is colder than the water in the Bay.

ON TWO NEW SPECIES OF MACROPUS FROM THE
SOUTH COAST OF NEW-GUINEA.

(PLATE XXXIX.)

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Amongst the collection of Mammals from New Guinea in the Macleay Museum, two undescribed species of Kangaroo attracted my attention. Through the well-known kindness of Mr. W. Macleay, I had the opportunity of examining the specimens sufficiently to enable me to bring the following remarks and description before this Society.

Both were remarkably alike in the general proportions of the body and the colour of the fur. One was smaller than the other, which difference however, I accounted for its being a female. But the closer inspection of its incisors (Fig. 5 and Fig. 8), presented

(4). I found the temperature of the sea water on the surface in the harbour of Valparaiso (in May, 1871) to vary from 12° 0 and 12° 5 C.

(5). Vide: my letter on the way to New Guinea in 1871, published in the "Iswestija" of the Imp. Russ. Geograph. Soc. of St. Petersburg.

such diversity in shape, that it cannot be explained, I believe, as a sexual difference and therefore, I find myself obliged to distinguish them as two different species.

The general shape of the body, principally the greyish brown colour of the fur, greatly resembles *Dorcopsis luctuosa*, but the hair on the neck directed backwards and the large incisors contradict this supposition.

Having been informed by Mr. Masters, the Curator of the Macleay Museum, that a few skins of some New Guinea Kangaroo's, purchased by Mr. Macleay from Mr. Goldie, were preserved in spirits, I examined them at the first opportunity and had the good chance of finding amongst them a skin, with the skull, of one of the new species, which discovery put me in the position of examining the dentition and of making the description of this species more complete.

The shape of incisors, the absence of canines, the smallness of premolars and the direction (backwards) of the hair on the neck are reasons why I include the two new species in the Genus *Macropus*. One of them I have called in honor of J. Beete Jukes, the distinguished naturalist of the surveying voyage of H.M.S. Fly in Torres Straits and New Guinea during the years 1842-46.

1. *MACROPUS JUKESII*. n. sp.

♀. From the hills near Anuabada (Port Moresby) on the South Coast of New Guinea. (Stuffed specimen in the Macleay Museum.)

Measurements.

From tip of nose to base of tail.....	635 mm.	24,8 in.
Tail " " " "	370 —	14,6
From tip of nose to occiput	124 —	4,9
Fore limb " " " about....	170 —	6,7
Hind limb " " " about....	330 —	13,0
From head to the end of nail of 4th toe	142 —	5,6
Length of the ear.....	44 —	1,7
Circumference of tail near base.....	124 —	4,9

Colour of the fur. The head, back and external sides of the limbs dark grey. The underside of the body from the chin to the end of the tail of light grey colour.

Muffle bare.



Tail slender, on the under side nearly bare, on the upper covered with short dark hair. No white tips to the tail.

I have already mentioned, that I had the opportunity of examining the skull of *M. Jukesii*, but unfortunately, the skin before it arrived in Sydney had been preserved in common salt, which mode of preservation had the result, that the bones and teeth of the specimen were covered with a thick layer of some white stuff, which, though not interfering with the general shape of the skull, rendered the examination of the sutures as well as other minor osteological details of the same very difficult. Wishing to get rid of this white interfering cover, I tried to dissolve it in boiling water but not having succeeded, I went to Dr. A. Leibius to find out about its chemical nature. It proved to be magnesia (*), which could only be dissolved by boiling the skull in a solution of muriatic acid.

Fearing however, that even a very weak solution of acid would destroy the thinner bones, I preferred to abstain from the experiment and to remove as much as possible the white crust mechanically by scratching it off with a scalpel. I succeeded only partly, some of the suture remained still not distinct and the molars could not be made free from the incrustation of magnesia, without destroying them.

The *skull* is elongated ; examined from above (Fig. 2) shows two very marked ridges running from the orbital margin of the frontal bone, along the parietalia, to the external corners of the imparietal bones.

Examined from the side, (Fig. 1) the skull appears not of great height in the region of the fronto-parietal suture and shows a very marked bending of the premaxillary region downwards. The apex of the angular process of the inferior margin of the zygoma is opposite the posterior cusp of the second molar. The palate

* Dr. A. Leibius who kindly examined the above-mentioned white substance, expressed the opinion that the magnesia crust on the skull was probably the result of *decomposition of magnesium chloride*, which is nearly always contained in the unpurified common salt, which had been used in this case for preserving the skin. The other product of this decomposition—chlorhydric acid—had the effect of softening the bones. I think this case shows sufficiently the unfitness of using unpurified ordinary salt for preserving Zoological specimens.

presents some strongly marked transversal folds, of the disposition of which, a glance on Fig. 3 can give a better idea than a long description. The anterior part of the palate, between the second lateral incisor and the first transversal fold is only half the width of the palate between the 3rd and 4th molar.

Dentition. 3 1 3
 —i, —pm. —m. (Fig. 3 and Fig. 4.)
 1 1 4

Incisors. (Fig. 5 and 6.) The first, is a little longer than the other two, the second little smaller than the first and third and the third broader than the first and second. The lower margin of the third incisor is not a straight line but an angular one and presents on his posterior lower corner an indication of a fold which is rather easy to discern only when the skull is taken out. (Examining the incisors of the stuffed specimen, I was not at all sure about the existence of the fold and convinced myself of it only after having examined the skull.)

The third incisor inspected from below (Fig. 6), consists of two longitudinal, parallel edges, of which the interior is lower than the exterior. The third incisor of *Macropus* (*Halmaturus Thetidis* (*)) is a little like the corresponding tooth of *Macropus Jukesii*.

Premolars. The upper premolar is not larger (broader) than the first molar. On the cutting edge of the upper premolar 2 anterior cusps and a 3rd longer and less pointed one are distinctly to be seen. The lower premolars are smaller than the upper and have also 3 marked cusps on the cutting edge.

The anterior cusps of premolars of both jaws are the most distinct and the most pointed. The incisors and premolars have suffered less from the effect of the salt than the molars, where the crust of magnesia could not be removed without destroying the teeth, *i.e.*, breaking also away pieces of enamel. Notwithstanding the crust the usual shape of the molars of *Macropodidæ* could however easily be discerned, as well as that the transversal ridges only of the first maxillar and of the first and second mandibular molars have been to a certain extent worn down.

(*) *Waterhouse.* Mammalia II., p. 194, pl. 3, fig. 2 c. and d.

On the lower jaw 3 molars on each side are to be found, with the tops of the crown of the 4th just appearing.

2. *MACROPUS GRACILIS*. n. sp.

(Fig. 7.)

♂. From the hills near Anuabada (Port Moresby), on the South Coast of New Guinea. (Stuffed specimen at the Macleay Museum.)

Measurements.

From tip of nose to base of tail.....	725 mm.	29,3 in.
Tail " " " "	385 —	15,2
From tip of nose to occiput	138 —	5,4
Fore limb " " " about....	220 —	8,7
Hind limb " " " about....	410 —	16,2
From head to the end of nail of 4th toe	162 —	6,4
Length of the ear.....	58 —	1,9
Circumference of tail near base	128 —	5,0

Muffle bare and split vertically in the median line.

Colour of the fur. Head, back, external side of limbs dark brownish-grey, the underside of the body, from the chin to the end of the tail, of light grey colour. On the head, from the upper lip to under the eye, a light coloured band is noticeable.

Nails long and sharp; on the middle finger 17 mm. (about 0.7 in.) on the 4th toe 32mm. (about 1.3 in.) long.

Tail. One third of the upper side covered with dark grey hair, on the other two third hair scarce, on the under side nearly bare. The white tip of the tail is quite distinct.

As already mentioned, these two species present very slight differences: the fur of *M. gracilis* is a little browner than of *M. Jukesii*, the tail in proportion to the body and the distribution of hair on the same shows trifling differences. Therefore I am very sorry not to have had the chance of obtaining a skull of *M. gracilis* the examination of which could, I think, decide the question if these differences are specific or only sexual.

Not having the skull, all I know about the dentition of *M. gracilis* is restricted to the result of the examination of the incisors from the outer side and the fact of the absence of the d. canini (which fact as well as the direction of the hair on the neck authorise me to describe this animal as a *Macropus*.)

Fig. 8 represents the lateral view of the incisors of *M. gracilis* (four times the nat. size) and Fig. 5 the corresponding teeth of *M. Jukesii* (four times the nat. size).

The comparison of these two figures, shows very marked difference in shape which I do not think could be recognised as sexual differences only, and until it is proved, that the dentition of Kangaroos varies *to such an extent*, according to the sex, the described two species have to stand separate.

EXPLANATION OF PLATE XXXIX.

- Fig. 1.—Lateral view of a skull of *Macropus Jukesii*, *Mcl.* (Nat. size.)
 Fig. 2.—Superior view of the same. (Nat. size.)
 Fig. 3.—Teeth of the upper jaw and the palate, with the transversal folds of *M. Jukesii*. (Nat. size.)
 Fig. 4.—Teeth of the lower jaw. (Nat. siz.)
 Fig. 5.—Lateral view of the incisors of *M. Jukesii*. (Four times nat. size.)
 Fig. 6.—Under surface of the 3 right incisors. (Four times nat. siz.)
 Fig. 7.—*Macropus gracilis*, *Mcl.* (Sketch after a stuffed specimen of the Macleay-Museum.)
 Fig. 8.—Lateral view of the incisor of *M. gracilis*. (Four times nat. size.)